

**Declaration of Commercial Success of the
Application File Hyperlink (Trade name AppLink)
(application no. 09/866,454)**

Commercial Success: Sales

The Applicant's company has made money with this invention. Software, hardware & software product installations and company-hosted ASP services incorporating AppLink have all been sold to numerous customers, from the US Air Force to auto dealers to conventional and on-line educational institutions.

Commercial Acquiescence: Licensing

Applicant's company has licensed AppLink to Tarantella, a competitor and major player in the remote-applications space (a competitor to Citrix).

High-Level Partnerships

Sun Microsystems has agreed to allow Sun Star Office (their competitor to Microsoft Office) to be used with AppLink.

IMSI (publishers of TurboCAD, TurboProject, Flow, etc.) have agreed to allow their products to be Applinked cost-free by their customers to offset the advantages enjoyed by Microsoft's competing products.



JAMES L. RICE III
Applicant Pro Se

14 FEB, 2005
Date

**THE APPLICATION OF
MARIX APPLINK TECHNOLOGY
AT SAINT PAUL TECHNICAL COLLEGE**

A WHITE PAPER

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Saint Paul, Minnesota

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*NOTE: APPLINK MENTIONED
ON PAGES 4, 14, 17*

SUMMARY

THE APPLICATION OF MARIX TECHNOLOGY AT SAINT PAUL TECHNICAL COLLEGE

The Business Division of Saint Paul Technical College, [SPTC] is the largest division of the college and is the most intensive user of computers and software. Within the business division the Computer Information Systems Technology , [CIST] is the largest department with an enrollment that is approximately 17% of the enrollment of the college.

The dean of the business division requested a review of the division's software and hardware infrastructure during the fall of 2000. The dean was concerned that the division's academic budgets were being diverted to hardware and software upgrades at the expense of other areas of instructional and classroom support.

After examining several options the dean and faculty felt that SPTC should implement an applications services approach to the problem of lab and classroom software support and use thin client technologies to the extent possible to lower the overall costs of ownership.

From the initial studies the CIST department put together a conceptual model of an ideal system. Several vendors were contacted and none of these vendors felt the requirements could be met within the college's budget and time constraints.

Marix, Inc. was contacted and asked to review the requirements. Marix proposed a "proof of concept" implementation and if the implementation proved successful a production installation would begin in the Fall of 2001.

The proof of concept installation was successfully completed in July of 2001 and the production installation started in November of 2001.

To date, the Marix implementation has produced the following results:

1. The Marix system has become the primary vehicle for delivering applications and development software to students in CIST. Students who are using the Marix system appear to be very satisfied with it.
2. Based on decreased capital and operating costs as well as increased revenues from larger average class size and new course offerings the Marix system should pay for itself within an academic year.
3. Using the Marix web top the useful life of the existing inventory of PC workstations is extended. This has allowed the division to avoid both replacement and upgrade costs. For example in the first two months of operation the division has avoided over \$23,000 in memory upgrades alone.
4. Rather than continue to buy desktop workstations the CIST department is revising its capital budget. The department will recommend a reduction in workstation purchases by at least 60% over the next three years.
5. The internal “digital divide” issue has been largely resolved. The Marix system provides equal access to computational facilities to nearly all students with Marix accounts. Special programs are being devised to insure that any remaining students have equal access and that no student has an advantage due to more fortunate financial circumstances.
6. Plans for a “laptop mandatory” program were canceled. The Marix system eliminates the need for such a requirement. Students can get to their software and associated files from any computer connected to the Internet.

7. For the 2002-2003 academic year and beyond the CIST department will collect student assignments using the Marix APPLINK technology. This will lead to decreased paper usage, less faculty time grading assignments and improved virus protection.
8. The business division is offering new courses such as Oracle database management using the Marix software as a delivery vehicle. This has been an unqualified success adding tuition revenues of over \$60,000 annually. SPTC will leverage this advantage and open additional sections based on the Marix model.
9. The Marix model supports the use of thin client technology in the classroom. Due to the reliability of the thin clients the size of classes in these facilities was increased by 25%, an average of 5 students per session.
10. CIST faculty are developing a distance education framework around the Marix model. SPTC is planning to integrate the Marix desktop into course management software such as WebCT and Blackboard. These distance education courses will serve to increase enrollment in both traditional and newer "high demand" technology courses
11. The use of the Marix model for classroom instruction and laboratory support has dramatically reduced laboratory configuration problems. In courses using the Marix technology faculty no longer spend large amounts of classroom time responding to student complaints and fixing installation problems.

12. The Marix model was implemented with no formalized training. Its intuitive interface and small learning curve allowed a relatively smooth startup, and it continues to be well received.
13. The Marix solution has improved classroom utilization and eased scheduling. Since any laboratory can be reconfigured at the browser level special laboratory setups are not required.
14. SPTC is using the Marix software to support a remote campus at a local high school without needing to support equipment or software at the site. This has allowed the college to increase enrollment and develop a closer working relationship with the local school district.
15. After a relatively short exposure to the Marix system students have written letters and emails complementing the school for its adaptation of this technology. In one case about 15 students co-authored and delivered a thank you note.
16. Departments other than CIST are requesting access to the Marix system and this is leading to application of the technology to departments outside of the computer area such as accounting and administrative support.

The Marix system allows the immediate deployment of the thin client computing model on existing information systems hardware. In addition it provides access to files and application software anywhere on the Internet. These advantages allow a lower cost of ownership and dramatically improved services.

BACKGROUND

Saint Paul Technical College was founded in 1917 as Saint Paul Technical Vocational Institute a part of the Saint Paul Public School System. In 1995 it was removed from the public school district and incorporated into the statewide system of higher education Minnesota State Colleges and Universities. Its mission statement is “education for employment”.

The college has a reputation for excellence in training computer programmers, network engineers, microcomputer support technicians and computer operators that began in the early mainframe computer era and continues to this day.

For much of the history of computer education at SPTC programming and computer operations education were conducted on an IBM mainframe system.

As personal computers and networked systems became the dominant industrial platforms the business division migrated to this platform for education as well.

The entire computer curriculum was revised in order to teach to personal computers, networked systems, client-server and the Internet. Soon interest and enrollment levels in the mainframe area declined and the mainframe was retired.

The number and variety of personal computers began to multiply. Their presence created a number of concerns that were not an issue when the mainframe system was the main teaching tool.

The business division identified the following problems related to this change:

1. Each personal computer needed to be maintained individually thereby creating a large number of individual computer installations. This increased the need for support personnel.

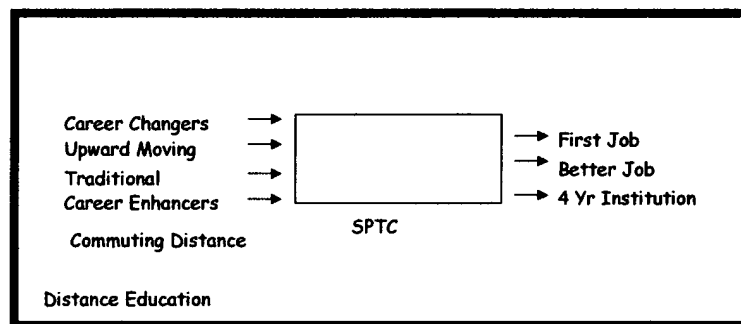
2. The technological lifetime for the mainframe was about 7 to 10 years, the personal computers had a usable lifetime of about 2.5 years
3. Software updates on the mainframe-based system were done on one machine and all users had access to them when they were made. Software updates to the PC's needed to be done on each machine and were often inconsistent.
4. PC based laboratories had an availability of about 80%, or in a typical 25 seat classroom about 20 worked properly. Mainframe terminals had an availability of nearly 100%.
5. The mainframe based system existed outside the campus network and security concerns were not an issue. The PC's were incorporated into the campus network and this resulted in a variety of constraints on what a student was allowed to do on a PC. These constraints were beginning to limit the amount of freedom the academic departments had in developing and delivering relevant curriculum.
6. Based on per seat maintenance costs of over \$1100 the small mainframe installation began to look like a bargain.
7. Student dissatisfaction with classroom and laboratory equipment was very high even though class sizes were kept low enough to insure that there were a sufficient number of working units in the classrooms.
8. The personal computer laboratories were relatively new yet were upgraded frequently to accommodate newer releases of software. This lead to a perpetual cycle of software installations and hardware upgrades that seemed to be getting out of control.

The division had simultaneously experienced an explosive increase in enrollment in the computer careers area. This growth was tightly coupled to a change in the demographics of the student population.

SPTC had historically conducted its classes during the day and had a traditional vocational technical student population. This population was largely Saint Paul area residents who had been in the workforce for a few years and returned to develop a skill set to get a better paying job.

The college organized itself around this student population. The graphic below represents the model the school operated around during this era.

Learner Flow Model



Constraints

- Lack of facilities
- Legacy technology

Opportunities

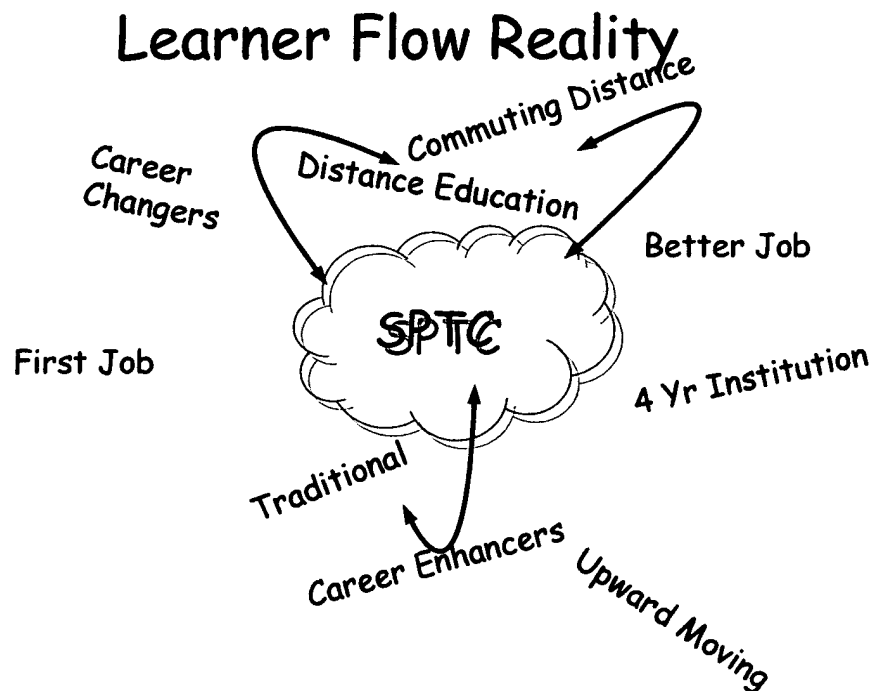
- Distance classes
- Student Access though Internet
- Labs outside SPTC Facilities
- Lower total cost

The student demographics changed as the demand for daytime education diminished and the number of evening course offerings exploded. Other factors

such as workforce training initiatives and immigration patterns also impacted the demographics of the student body.

The school was evolving into an institution for life long career training and support. While structured curriculum and traditional educational organization served the school well in the past the new student population demanded convenience and higher quality in their coursework at SPTC.

The learner flow model that most resembles this population is probably closer to the following diagram.



The shift in student demands occurred while the industry which produced the PC workstations and their accompanying software went through nearly continuous change.

After a series of discussions the dean of the business division wanted to examine alternatives to the networked PC in laboratories and classrooms. The dean wanted a solution that would recapture the advantages of the mainframe yet support the networked computer model that was in demand.

The following issues were considered important to the business division of the school:

1. Total Cost of Ownership, including:
 - a. hardware costs
 - b. software costs
 - c. support and maintenance costs
 - d. administrative costs
 - e. end user costs
2. Classroom equipment availability and maintainability
3. The internal "digital divide" which was created when more affluent students had access to hardware and software that less fortunate students could not afford.
4. The development and delivery of coursework in a comprehensive distance education model
5. Strategic direction of the academic departments served by the model
6. Software/Hardware accessibility
7. Infrastructure adaptability to rapidly changing software environments

A review of available technologies was conducted and a set of general recommendations was developed as follows:

1. The division should examine the application of thin client technology as an alternative to PC workstations.
2. If thin clients were to be used on the campus they must be capable of performing in a very demanding usage environment and therefore needed to be of a high quality.
3. Software should be delivered to users following an applications services model and preferably delivered over the Internet.
4. The system should be delivered as a “turn-key” solution which met the requirements defined in the review.
5. The system should be scalable to allow for future growth both internally and externally.
6. The system should be capable of being integrated into academic course management software such WebCT or Blackboard.

Based on these recommendations a number of vendors and schools were contacted to locate a product that could be purchased and installed as a package solution. SPTC did not find a product that met all of its requirements.

SUN RAY LABORATORY

During the process of investigating alternatives to PC networks research was done into various thin client alternatives. One of these alternatives was the Sun Ray thin client device manufactured by Sun Microsystems.

The Sun Ray technology relies on the server with no significant configuration at the workstation. This seemed to offer much of what the mainframe based system had provided.

After several different analyses it was decided to go ahead with a purchase of a 100 seat Sun Ray laboratory.

At a final cost of approximately \$70,000 the 100 seat Sun Ray laboratory represented a very favorable cost of approximately \$700 per seat compared with the \$1100 cost of a typical PC in this service.

In addition to the lower initial cost per seat the division expected the useful life of the Sun Ray enterprise appliance to be at least 7 years easily twice that of the typical PC in this type of service.

Additional benefits included:

1. Higher workstation availability, 99%+ for the Sun Ray appliance versus approximately 80% for the typical PC.
2. Centralized administration, all upgrades and maintenance would be done at the Sun server that supported the laboratory.

3. The laboratory was designed to be a stand-alone facility. This allowed the academic department additional freedom in setting curriculum and laboratory exercises.
4. Since the Sun Ray appliance is essentially a display that supports a keyboard and mouse they are very inexpensive. At academic pricing these units can cost as little as \$300 per seat. Maintenance on a given terminal would simply involve unplugging a defective unit and plugging in a good one. Workstation configuration problems would be eliminated.

The Sun Ray laboratory proved to the division the viability of thin clients in the classroom and in laboratories.

The Sun Ray laboratory had an obvious shortcoming. Since the technology was developed by Sun Microsystems and powered by its Solaris operating system only applications written for that environment could run on these devices.

THE MARIX SOLUTION

Early in the process of evaluating architectures the business division was directed to a vendor sponsored conference on the popular Citrix Metaframe product.

A Minnesota based vendor was invited to the school to discuss our interest. The vendor candidly and discussed problems they had encountered with Citrix in a classroom setting and recommended that SPTC develop an alternative approach.

On the advice of an adjunct faculty in the CIST department Marix, Inc. was contacted to review the requirements and determine if their software products could be applied in an educational setting. The Marix representatives also were concerned about the application environment but suggested a low cost “proof of concept” project. The project was conducted in June 2001.

The Marix proposal was very intriguing since if the project proved successful the technology would allow SPTC to leverage its investment in the Sun Ray network as well as extend the life of its installed base of PC workstations. This would be done while adding dramatic functionality to the computational services provided by the college. Specifically the ability to access applications and related files anywhere at anytime over the Internet.

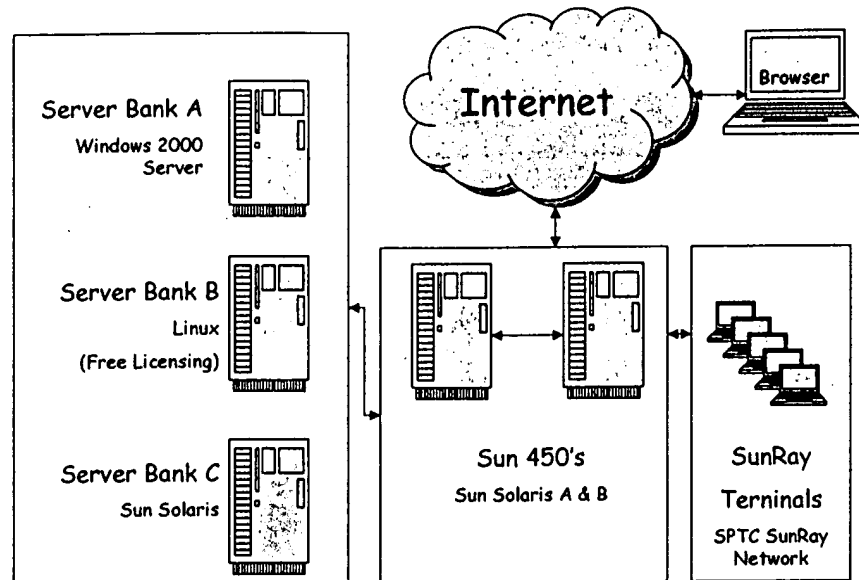
Additional Marix benefits included ease in file maintenance and an ingenious technology called “APPLINK” which holds the potential for a nearly foolproof method of eliminating viruses and worms. APPLINK also provides a convenient means for faculty to receive student homework without the need to use paper printouts.

This “proof of concept” study results were very positive and led to a full implementation project which began in November 2001 to support

classroom\lab efforts in the business division during spring semester of the 2001-2002 school year.

The Marix installation at SPTC is shown below at a conceptual level:

SPTC Marix System



The installation of the system began in November of 2001 and was completed during early January of 2002 in time for the start of classes for the spring term.

Due to time constraints the faculty received no formal training and little informal training.

THE MARIX IMPLEMENTATION

Very little formalized training was needed to begin using the Marix system. This is attributable to the intuitive nature of the Marix interface. Approximately 300 students were brought onto the system without training and no paper documentation.

The Marix system is now supporting access to applications across the Windows, Linux, and Solaris platforms. In addition to standard productivity applications the Marix system is supporting access to specialty software development tools such as the Oracle suite of application development tools.

The CIST department is an Oracle Academic Initiative member and was never able to take advantage of this association since the Oracle software was difficult to install and configure on students home PCs. Using the Marix system the Oracle applications are installed at the server room by experienced staff and distributed to students for their use over the network internally or over the Internet at their homes.

The ability of the Marix system to deliver Oracle applications allowed the department to open four sections of Oracle training each term. These popular classes typically fill early and due to the reliability of the Sun Ray devices and the ability of the Marix software to utilize them the class size in these sections was increased by 25% or 5 students a section. With tuition rates of about \$85 per credit, four 25 students sections of these courses could yield about \$68,000 in addition tuition revenue.

Due to the success of the Oracle initiative additional courses are being developed based on this model. Microsoft SQL Server, IBM DB/2 Universal, Microsoft

project, and Microsoft software development tools are all candidates for this type of delivery.

In addition to these offerings an entire set of Internet based courses is being designed. These new courses will be delivered by way of a conventional online classroom tool most probably WebCT or Blackboard. The Marix software will be available by way of a hyperlink. Homework assignments will be submitted using the Marix APPLINK facility.

SPTC Internet students will have the advantage of having both the coursework and the software delivered over the Web. CIST believes this will be a strong competitive advantage in the increasingly competitive online education marketplace.

There was some initial concern that the Marix system would not operate efficiently over a network connection. This has not been a problem with browser based use over the internet on home based PCs. The only area where this problem caused some concern was on the Sun Ray workstations. This problem has since been resolved.

Students were initially confused by the new installation but have quickly adapted to it. It is difficult to assess student satisfaction but several letters and compliments on the installation have been received as well as a few complaints about how the system was initially configured.

The system is growing in popularity within the school as students and faculty begin to see how the technology can be successfully applied in an academic setting.

The ability of the system to be used internally and over the Internet has piqued faculty interest in departments other than CIST. The application of the Marix system will continue to grow.

The Marix installation has proven itself to be a reliable, lower cost method of delivering software support within the CIST department both on campus and off campus. Its use will be extended to distance education and it will remain the primary vehicle for delivering software tools and file management within the CIST department and will be used within the current term to support academic computing within other departments in the business division.

SYSTEM ECONOMICS AND MARIX TECHNOLOGY

During the fall semester of 2000 the dean was very concerned that funds were being diverted from educational purposes and into spiraling PC maintenance and upgrades that seemed to have no limits.

System economics were therefore a major part of any consideration concerning computer classroom support.

PC LAN AND THIN CLIENT COSTS

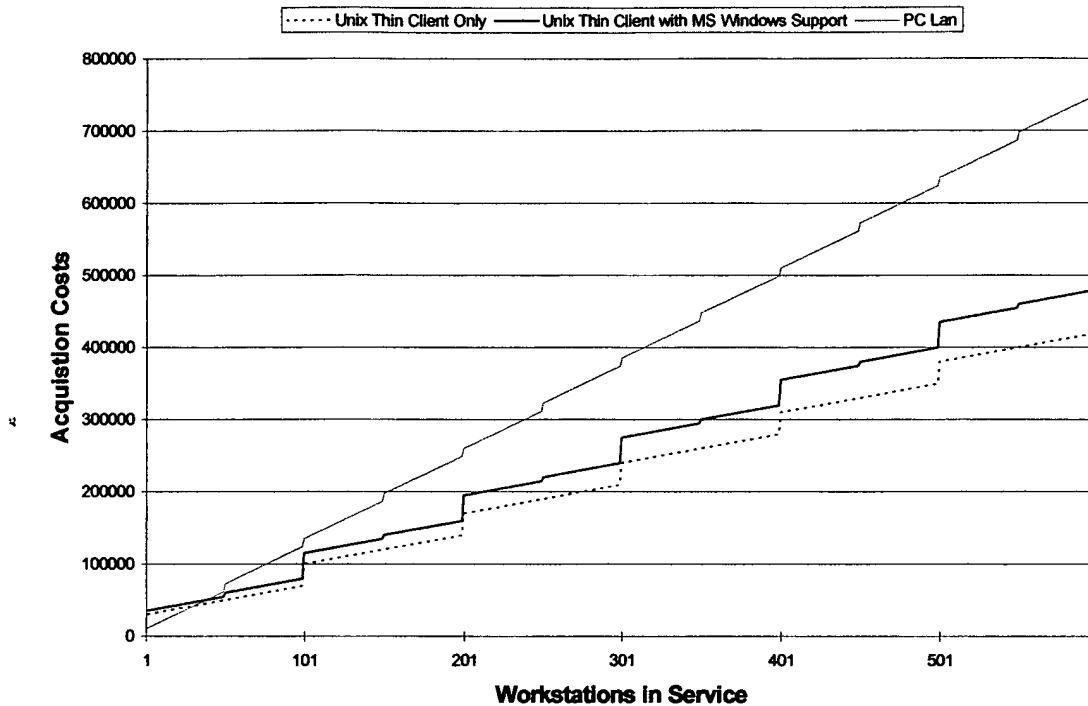
It became apparent early in the review of the literature that thin client architecture was the most economical from a total cost of ownership point of view. Studies of applications within educational institutions at all levels on a worldwide basis supported this view. No credible study was reviewed which supported any other position.

The use of standalone workstations only appears to be justified where local processing power is needed, privacy of personal files are a concern or where the unit is a teaching tool which is frequently modified.

In order to develop a framework for decision-making and to establish reasonable bounds on system ownership cost of a pure PC workstation based system was compared with a pure thin client system using data available to the division.

The chart below compares acquisition costs assuming networking infrastructure costs are similar for either hardware platform.

PC Lan and Thin Client Network Acquisition Costs (600 seats)



The diagram above was developed using data that was gathered from the actual purchases and quotes provided by vendors while the business division conducted the review.

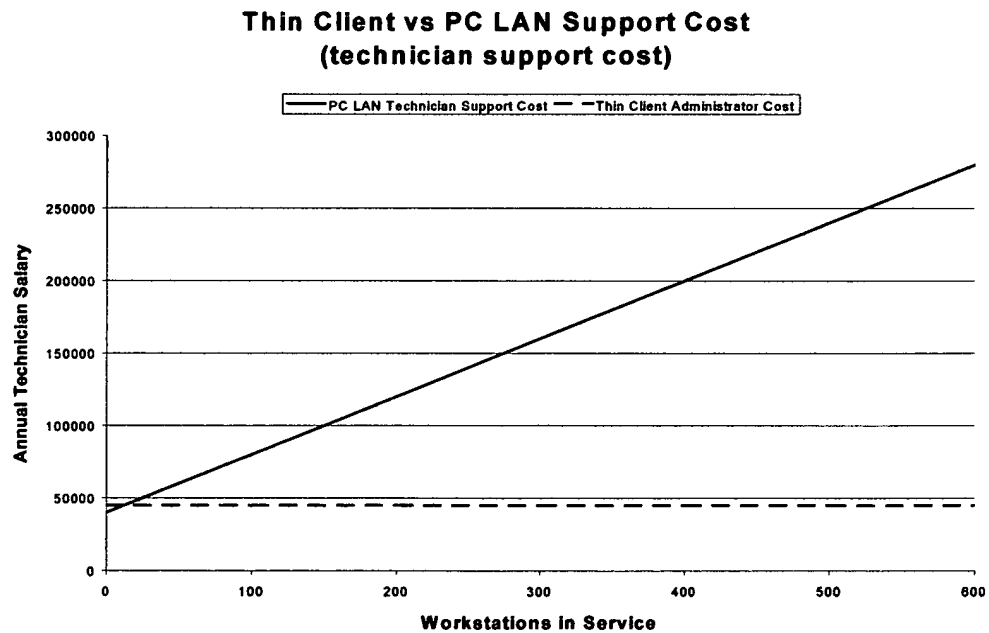
Software costs are not included in the PC network but were included in the thin client network since it was provided at nominal cost.

It is clear that the acquisition costs of the thin client system are significantly lower than a comparable PC workstation based system. Even when provision is made for application servers to support Microsoft applications on a thin client the

acquisition costs of the thin client system remain significantly lower than the PC network based system.

What is not shown in the diagram above is the technological obsolescence costs which are inherent in PC LAN type systems. PC LAN systems are technologically obsolete about every three years. The thin client terminal because of its relative simplicity has a serviceable life that is at least twice that of a PC type workstation. This means that not only are first costs less for thin clients but replacement costs are less than half that of PC LAN type technology.

While acquisition costs are lower the difference in operating costs are even more pronounced. The graph below compares personnel support costs of a thin client implementation to a PC LAN installation.



This diagram assumes an average annual salary of \$35,000 for a PC technician or LAN administrator and an average annual salary of \$45,000 for a thin client systems administrator. It also assumes one technician per 100 PC workstations.

Ignoring the greater hardware maintenance and upgrade costs inherent in the PC LAN design a thin client installation of 600 workstations will save over \$200,000 per year in labor costs alone.

It is difficult to compare PC workstation material costs to thin client workstation costs since at SPTC in 8 months of continuous service there has not been a single thin client workstation that has required any maintenance. There are no maintenance plans for the thin client terminals since their low replacement cost does not warrant their repair.

The thin client devices will be replaced as they fail. The low purchase cost of a thin client does not justify time and materials to repair them. PC's on the other hand are notorious for an almost continuous cycle of repair and maintenance.

Thin client technology relies heavily on the server to support the sessions at the thin client. Provisions must be made in the design of a thin client system for the deployment of highly reliable servers. These are frequently are more expensive to purchase and maintain.

If the servers on the thin client are to be used to store all of the users data files a system of regular backup also needs to be implemented. This frequently leads to the purchase and deployment of additional networked storage devices and higher capacity backup and recovery equipment.

These additional expenses were not an issue in the business division since the application was purely instructional and the system could be out of service for a day or two without a significant impact.

While thin client technology is not the answer to all computing needs it is clearly more economical and far more reliable than the PC based alternative. The dean of the division wanted to move to this economical platform to extent possible.

This migration could not be achieved quickly due to limited capital to retire and replace PC's and the inability of the thin client to support software other than Unix based solutions.

THE MARIX MODEL

The management problem faced by the dean was how to move to the more favorable economics of the thin client architecture and provide a platform for Microsoft applications within the budget of the division.

The Marix model supported this transition within the division budget and provided additional benefits beyond he lower costs of the thin client model.

The computer laboratories which supported the business division were all PC LANs except for the Sun Ray laboratory which supported primarily programming and database coursework. The workstations in these laboratories were protected from tampering by both hardware and software protection. The PCs were essentially thin clients since most the additional functionality of a thick client was negated by the hardware and software protection.

With the Marix system each PC becomes a thin client workstation. The PC's can be locked down and the application software that is on them removed. These workstations need only run a web browser this can be accomplished using as little as 32mb of ram on each station and a processor as slow as 100Mhz.

For example this paper was written entirely on the Marix system utilizing a 166mhz Pentium class machine with 32mb of ram. The paper and all figures were developed using the Microsoft Office 2000 suite of software through a web browser. There were no problems with latency as the documents were prepared.

The Marix implementation only involved investment in a server with extra disk space, 5 application servers, some minimal networking components and the Marix software. Consulting and installation were included as a part of the software purchase.

The server was sized to accommodate 600 concurrent users. These users could be on the campus network or any place on the Internet.

The existing infrastructure will be used as a thin client network with no further investment. The PC workstations will not be upgraded and will continue to be used until they fail. On failure the PC workstations will be replaced by the more economical thin client terminal.

While PCs tend to become obsolete within a few years most of them can operate for much longer as thin client terminals. The transition period from PC to thin client can be accomplished within normal budgets.

The Marix system is a bridge to the more favorable economics of the thin client model that provides greatly improved functionality.

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Weekly Review: Web Services on the Desktop

By [Phil Wainewright](#)

June 4, 2002

The oft-failed concept of delivering desktop Windows applications over the Web just keeps on coming back and taking another try, as I wrote in this column three weeks ago (see *Old ASP Ideas Are New Again*). Since that article appeared, I've not only received numerous e-mails from readers commenting on the phenomenon, I've also discovered further evidence that the idea really does seem to be on the verge of a resurgence, albeit in a different guise from the original Citrix-based proposition.

The most striking discovery came while I was researching Web applications that can be inserted into weblogs, a form of document creation that is about as far removed as you can get from Word on the PC. Against all the odds, I suddenly found myself sitting in front of an online demonstration of hosted Microsoft Office XP, which had been embedded in a weblog page using simply a link to a URL.

Online demonstrations like this were all the rage a year or two ago when ASPs were eager to show that Office could be delivered over the Web. But while the demonstrations were plentiful, convincing explanations as to why on earth anyone would want to access a desktop application across an Internet link were decidedly thin on the ground.

Read and React

"The interaction of online and desktop functionality will continue to be a focus of development and innovation. At the moment, we don't fully understand the optimum balance, but what's absolutely clear already is that making the interaction slick and reliable will be a critical element in the success of Web services architectures."

Give us your feedback in the ASPnews Discussion Forum

Sharing Documents Across the Net

Marix Technology, the company behind the demo I saw last week, has avoided this pitfall — although its previous name of FreeDesk suggests that it once sought — like so many other hosted Office hopefuls — to liberate users from their trusted desktop PCs.


Today, Marix takes a different tack, promoting its offering as a way of giving external Web-based users controlled access to selected documents. Its [AppLink](#) service allows a subscriber to provide a URL that visitors can use to open the document in a remote Windows session. All the necessary client software is downloaded automatically to the visitor's browser, but the document remains on

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the server. The AppLink subscriber is free to set an access password if they wish, and to determine whether visitors are allowed to edit, download or print the document.

So instead of attempting to replace Office on the desktop, the Marix solution extends Office into online collaboration environments where it has rarely been able to go before. Another service from Marix uses AppLink to intercept and store both incoming and outgoing e-mail attachments on a central server, neatly eliminating many of the bandwidth and security threats often associated with attachments.

Intelligently wrapping Windows terminal technology into services like these greatly increases the chance of success for a company like Marix. But it's not the only company that is venturing anew into the field of remote access to Windows applications.

Softricity Turns Apps into Web Services

Last week, Microsoft announced that it will be promoting technology from startup company Softricity that allows Windows applications to be offered as Web services. Softricity's Softgrid platform streams applications to user machines from a central server. Although the applications execute on the user's PC, they do so within a protected environment that doesn't interfere with the machine's settings. All the user rights and settings are managed from the central server. The approach therefore combines the benefits of central management with the advantages of local execution.

The joint development, sales and marketing deal with Microsoft is a real coup for Softricity, one of a number of emerging companies that offer technologies for streaming applications from central management servers to remote PCs. Last week, applications-on-demand platform vendor Exent Technologies announced its entry into the corporate market, while Paris-based Esual Software which announced winning \$8 million in a fourth funding round.

What all of these solutions have in common is a recognition that there are some things that are best done in the network, while others work best on the desktop. The trick is to architect the applications and the delivery platforms in a way that divides these roles in the optimum way. Speaking of which, a Microsoft contact pointed out to me that my comments on synchronization in Exchange and Outlook two weeks ago were behind the times (see The ASP (Silent) Killer App). I had written that it should be possible to keep a master copy of your inbox data on the server, but it turns out that my wish has already been granted. It looks like it's time I upgraded.

Striking an Online-Desktop Balance

The interaction of online functionality with desktop functionality is one that will continue to be a focus of development and innovation for some time still to come. At the moment, we don't fully understand the optimum balance, and many of the technologies and standards are still to be fully defined. But what's absolutely clear already is that making the interaction slick and reliable will be a critical element in the success of Web services architectures.

A good illustration of why this matters so much came with last week's announcement by online CRM vendor Upshot of its integration with MS Office (see UpShot Mixes CRM With Microsoft Office Apps). Upshot's CEO Keith Raffel made clear in his interview with ASPnews that the ASP's Office Express service "leverages Excel 2000 as the client," while the Office Connect application programming interfaces (APIs) announced last week are designed so that developers using Microsoft's Visual Studio.NET tools can easily link UpShot's online functionality with desktop applications.

Raffel is clearly under no illusions that UpShot needs to interact with client functionality if it is to succeed as a network-based application. Indeed, the irony of

Upshot's linking into Office in this way when Microsoft's own Great Plains subsidiary still hasn't ventured beyond Windows terminal deployment of its suite is not lost on Raffel: "We fit more with the vision for Web services [than Great Plains]," he told ASPnews.

Network Means Clients *and* Servers

One of the keys to understanding Web services is to recognize that they enable the distribution of functionality throughout the network. Unlike the first generation of ASPs, today's leading-edge practitioners realize that the client is as much a part of the network as the server, and that the purpose of Web services is to enhance the role played by the client rather than eliminating it. In a Web services environment, Office will still be a network application even when it's running on the desktop; and sometimes users will also need the option of running it from a server.

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Technical Requirements for using Marix Oasis with AppLink

- **Microsoft Windows:** Marix supports and recommends Microsoft Internet Explorer (5.5 SP2+, 6.0+) using the default Microsoft Virtual Machine (i.e., not the Sun Java Plug-in). Marix also supports Netscape 7.0+ with the Sun Java Plug-in 1.4.1+. When using Microsoft Internet Explorer on older computers, we recommend updating your Microsoft Virtual Machine.
- **Mac OS 9 and Mac OS X:** Marix is not supported on Mac OS 9 and Mac OS X. Support for Mac OS X versions of Microsoft Internet Explorer and Apple Safari is planned for a future release.
- **UNIX/Linux:** Marix supports and recommends Netscape 7.0+ with Sun the Java Plug-in 1.4.1+.
- **Proxy/Firewalls:** Marix accesses data using the standard Web port (80) and the standard secure Web port (443). This is similar to the requirements for securely purchasing on-line with a credit card. Marix also requires that Java, JavaScript and Cookies be enabled on the client computer (these are usually the default settings, but may have been changed by your system administrator). Marix requires that the client browser be allowed to download and install signed Java applets. See your systems administrator for more information.

Editing AppLink Permissions in Marix

AppLink Permissions: Marix environment

Use the following steps to edit the permissions for an AppLink within your Marix environment.

To create an AppLink and set permissions:

- 1. Next to the file to which you would like to create an AppLink, use the drop-down menu to select "AppLink"**
- 2. On the page that loads, select "Edit"**



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Tarantella Inks Deal with Marix Technologies

Multi-year Agreement Provides Key Technology for Marix Technologies

Santa Cruz, CA (May 14, 2002) Tarantella, Inc., (Nasdaq: TILA), a leading supplier of Internet infrastructure software, today announced that Marix Technologies, a provider of enterprise class software solutions has signed a multi-year agreement for Tarantella Enterprise 3 technology, licences, support, and maintenance. The Tarantella Enterprise 3 software will be integrated with Marix software products, providing key technology to enable secure, remote access and control over critical applications, documents, and e-mail attachments.

"It is essential that enterprises have a centralized point where applications, documents, and e-mail attachments can be accessed remotely and securely," said Dennis Johnson, CEO of Marix Technologies. "The Tarantella software is an integral component of our technology, providing Marix users with immediate and secure access to all corporate applications, documents, and attachments from anywhere in the world via any Java-enabled client device."

"Marix saw the opportunity to use Tarantella as the engine to address customers' needs for secure and controlled access to documents linked to e-mail messages," said Edmundo Costa, vice president of worldwide channel sales for Tarantella. "This agreement is another example of how independent software vendors are utilizing Tarantella software to exploit the opportunities of server-based computing, improve the value they deliver to customers, and boost their bottom line."

Tarantella, Inc. creates Internet infrastructure software that enables enterprises to provide users anywhere with managed, secure web-based access to critical corporate applications and services. Tarantella Enterprise 3 software provides instant access to mainframe, AS/400, Windows, Linux and UNIX applications, enabling enterprise users to work effectively from anywhere, at any time. Tarantella software offers scalable, cross-platform solutions for both the public Internet and private intranets.

Marix Application Manager provides secure remote access to centrally managed applications and documents, allowing browser-based access from any location. Marix Attachment Manager offers policy-based control of e-mail attachments, protecting sensitive documents and shielding desktops from potential viruses. All Marix products contain the company's patent-pending AppLink technology, which encapsulates a document and an application into a URL. This technology results in an entirely new way of managing, viewing, and manipulating documents.

About Marix Technologies, Inc.

Marix Technologies provides enterprise software products that offer unique and secure remote access to applications and documents, resulting in an entirely new way of managing, viewing, and manipulating documents. Marix Application Manager provides secure remote access to centrally managed applications and documents. Marix Attachment Manager offers policy-based control of e-mail attachments, protecting sensitive documents and shielding desktops from potential viruses. For more information, go to <http://www.marixtech.com/>.

About Tarantella, Inc.

Tarantella is the leading provider of Internet infrastructure software that enables web-based access to enterprise applications. The Tarantella Enterprise 3 solution instantly provides managed and secure web access to enterprise mainframe, Windows, AS/400, Java technology, Linux, and UNIX

For Immediate Release

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applications. It leverages existing IT assets to provide cost savings, improved productivity, and the flexibility to accommodate the rapid changes in today's organizations. For more information, go to <http://www.tarantella.com>.

Tarantella, Tarantella Enterprise 3, and the Tarantella logo are trademarks or registered trademarks of Tarantella, Inc., in the USA and other countries. Java and all Java-based marks are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries. All other brand and product names are or may be trademarks of, and are used to identify products or services of their respective owners.

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SunFlash

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Software Section

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Marix Integrates AppLink Technology With StarOffice[tm] 6.0 Software

Remote and Local Users Can Alter Documents That Stay on Secure Server

Marix Technologies Inc. has reached a licensing agreement with Sun Microsystems Inc. to integrate StarOffice[tm] 6.0 software into Marix's technology. This agreement, which integrates StarOffice 6.0 software with Marix's AppLink and permits central hosting for StarOffice, will enable remote and local users to securely edit and return changes to StarOffice documents without those documents leaving the secure server.

Businesses that need to reduce desktop management and licensing costs can avail themselves of this integration to deploy server-based StarOffice centrally. Both local and remote users can access the Marix 128-bit SSL encrypted file management system, which contains StarOffice and their files with synchronizing capabilities to their own desktops. Almost any Java[tm] technology-based browser will work with the AppLink/StarOffice integration.

"AppLink offers a unique solution for delivering StarOffice as a hosted service," said Nancy Lee, group product marketing manager, Desktop Solutions, Sun Microsystems. "This solution presents new market opportunities for StarOffice to penetrate new channels while continuing to gain corporate acceptance of StarOffice on traditional desktops."

By linking a URL to a document file and the associated StarOffice application, AppLink enables access to the URL via email, instant messaging, or other means of distribution. AppLink launches the application from a protected central server and simultaneously loads the document file. Running in the launched application, the document file is accessed with a Web browser and can be viewed and run remotely by one or more users simultaneously from any network-connected device.

The AppLink integration, which is platform and application independent, gives the creator complete control of rights permissions. The integration offers yet more flexibility in that it can be installed at the enterprise level or embedded within third-party software applications.

"The combination of StarOffice's unique ability to open and edit the most commonly used office productivity documents was one of the deciding factors in our decision to integrate StarOffice and AppLink," said Dennis Johnson, Marix president and chief executive officer. "The net result of this combination is the ability to securely share a document yet provide the recipient the capability to use StarOffice to open, edit and return the document without the document ever leaving the originator's datacenter."

For further information:

<http://www.marix.com>

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- SolarisTM 9 12/02 Operating Environment (Intel Platform Edition) Release
- Project JXTA Brings Maturity to Peer-to-Peer Solutions
- Marix Integrates AppLink Technology With StarOfficeTM 6.0 Software**

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